AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Amendments shown by strikethrough (for deleted matter) or underlining (for added matter).

1. (Currently amended) An automated switching apparatus for electrically cross-connecting any line or lines ~~line(s)~~ in a set of input lines to any line or lines ~~line(s)~~ in a set of output lines, said apparatus comprising:

a switch matrix comprising a plurality of sliding contact means for selectively connecting any of the input lines to any of the output lines;

drive means for moving the contact means on the switching apparatus;

position detection means for detecting the position of the contact means on the switching apparatus; and

control means connected to said drive means and to said position detection means for accurately moving the contact means to a desired position on the switching apparatus wherein,

said switch matrix includes a plurality of electrically conducting main contact pads disposed thereon and arranged in a plurality of contact trains, and

said contact means includes a set of main contact springs that are slidably engageable with said main contact pads for cross-connecting the lines, and

said switch matrix further comprises a first and a second set of detector pads disposed thereon in proximity with said contact trains, and wherein

the contact means further includes corresponding sets of detector springs that are slidably engageable with said first and second set of detector pads for detecting the precise position of the contact means.

2. (Deleted) ~~The apparatus according to claim 1 wherein, said switch matrix includes a plurality of electrically conducting main contact pads disposed thereon and~~

~~arranged in a plurality of contact trains, and wherein said contact means includes a set of main contact springs that are slidably engageable with said main contact pads for cross-connecting the lines.~~

3. (Original) The apparatus according to claim 1 wherein, said switch matrix sliding comprises a plurality of positioning screws driven by the drive means for moving the contact means.

4. (Original) The apparatus according to claim 3 wherein, the positioning screws are each driven by an electric motor that is controlled by the control means.

5. (Original) The apparatus according to claim 3 wherein, said drive means further comprises:

a first and a second lateral positioning screws driven by rotary drive means; and

a lateral drive gear engaged between the first and second lateral positioning screws,

whereby the combination in rotation of the lateral positioning screws induces lateral movement of the lateral drive gear to a position to selectively engage one of said positioning screws, and wherein the synchronized rotation of the lateral positioning screws induces stationary rotation of the lateral drive gear to rotate the selected positioning screw for moving the contact means.

6. (Original) The apparatus according to claim 5 wherein, said first and second lateral positioning screws are driven by electric motors that are controlled by the control means.

7. (Original) The apparatus according to claim 5 wherein, the rotating drive means comprises a electric motor driving the first lateral positioning screw at one end, wherein the other end is coupled to a clutch arrangement that is selectively engageable to synchronously rotate the second lateral positioning screw in a manner that induces lateral movement and stationary rotation in the lateral drive gear.

8. (Deleted) ~~The apparatus according to claim 1 wherein, said switch matrix further comprises a first and a second set of detector pads disposed thereon in proximity with said contact trains, and wherein the contact means further includes corresponding sets of detector springs that are slidably engageable with said first and second set of detector pads for detecting the precise position of the contact means.~~

9. (Original) The apparatus according to claim 1 wherein, the switch matrix is configured in a stacked arrangement for increasing the number of cross-connectable lines.

10. (Original) The apparatus according to claim 9 wherein, switch matrix is incorporated into a plurality of cross-connect modules for installation into a distribution frame, said plurality of cross-connect modules operate in cooperation with a automated cross-connect system for remotely establishing, removing, or modifying cross-connects.

11. (Currently amended) A method of automating a switch matrix apparatus for cross-connecting a line or lines ~~line(s)~~ in a set of input lines to any line or lines ~~line(s)~~ in a set of output lines, said switch matrix comprising a plurality of electrically conducting contact pads disposed thereon, a plurality of contact means driven by a plurality of corresponding contact means positioning screws such that the contact means are slidably engageable with the contact pads for cross-connecting the lines, and position detection

means for detecting the position of the contact means on the switch matrix, the method comprising the steps of:

displacing the contact means to engage a predetermined set of contact pads by rotating the contact means positioning screw;

detecting the position of the contact means; and

adjusting, if necessary, the position of the contact means based on the detected position, wherein

the contact means is accurately positioned on the switch matrix ~~arrangement~~ by control means in communication with the position detection means and an electric motor or motors driving the positioning screws ~~electric motor(s)~~.

12. (Original) The method according to claim 11 wherein, a lateral drive gear is engaged between a first and a second lateral positioning screws, the operation for displacing the contact means comprising the steps of:

rotating the first lateral positioning screw in either a clockwise or counter-clockwise direction, while keeping the second lateral positioning screw stationary, to induce lateral movement of the lateral drive gear in a first lateral direction or a second lateral direction respectively;

positioning the lateral drive gear to engage a selected contact means positioning screw; and

synchronously rotating the first and second lateral positioning screws to induce stationary rotation of the lateral drive gear to selectively engage and rotate the contact means positioning screw to move the contact means to establish cross-connect.

13. (Original) The method according to claim 12 wherein, the contact means positioning screws are rotated by separate electric motors.

14. (Original) The method according to claim 11 wherein, the first and second lateral positioning screws are each rotated by an electric motor.

15. (Original) The method according to claim 12 wherein, an electric motor drives the first lateral positioning screw at one end and such that the other end is coupled to a clutch arrangement being selectively engageable to synchronously rotate the second lateral positioning screw in a manner that induces lateral movement and stationary rotation of the lateral drive gear.

16. (Deleted) ~~The method according to claim 12 wherein, the contact means is accurately positioned on the switch matrix arrangement by control means in communication with position detection means and the electric motor(s).~~

17. (Original) The method according to claim 11 wherein, the switch matrix arrangement is incorporated into a plurality of cross-connect modules for installation into a distribution frame, the plurality of cross-connect modules operate in cooperation with a automated cross-connect system for remotely automating the establishment or removal of cross-connects.